

Application No. 09/609,269
Amendment "B" dated October 21, 2004
Reply to Office Action mailed August 12, 2004

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) In a gateway computer system coupled between at least one computer system and at least one remote computer system, a method of the gateway computer system dynamically converting ~~a data structure~~ from a first format as received at the gateway computer system from an originating computer system into a second data format compatible with a remote computer system prior to transmitting the data to the remote computer system so that the remote computer system does not have to convert the data into the second data format, the method comprising:

receiving data in a first data format from an originating computing system that is addressed to a remote computer system;

an act of identifying a sequence of format conversion modules that, when executed in sequence, converts the data ~~structure~~ from the first data format into the second data format, wherein the act of identifying is based on the address to the remote computer system;

an act of converting the data ~~structure~~ from the first data format into an intermediate data format using a first format conversion module in the sequence of data conversion modules; and

an act of converting the data ~~structure~~ from the intermediate data format into the second data format using at least two second format conversion modules in the sequence of data conversion modules, each of the second format conversion modules converting the data ~~structure~~ into different formats;

upon converting the data to the second data format, transmitting the data to the remote computer system.

2. (Cancelled).

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3. (Currently Amended) A method in accordance with Claim 21, further including wherein the act of identifying the first data format comprises the following: by an act of reading a content type field associated with the data-structure.

4. (Currently Amended) A method in accordance with Claim 21, wherein the act of identifying the second data format comprises the following:

an act of reading a destination address field associated with the data-structure;
an act of querying a database for a data format recognized by the remote computer system that is represented by the destination address within the destination address field;
and
an act of determining that the resulting data format returned from database is the second data format.

5. (Original) A method in accordance with Claim 1, wherein the remote computer system comprises a wireless device.

6. (Original) A method in accordance with Claim 5, wherein the originating computer system comprises a server computer system.

7. (Original) A method in accordance with Claim 1, wherein the originating computer system comprises a wireless device.

8. (Original) A method in accordance with Claim 7, wherein the remote computer system comprises a server computer system.

9. (Original) A method in accordance with Claim 1, wherein the originating and remote computer system both comprise wireless devices.

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10. (Original) A method in accordance with Claim 1, wherein the originating and remote computer systems both comprise server computer systems.

11. (Currently Amended) A method in accordance with Claim 1, further comprising the following:

an act of receiving the data ~~structure~~ using a first protocol module that is compatible with receiving data from the originating computer system; and

an act of determining a second protocol module that is compatible with delivering data to the remote computer system; and

an act of transmitting the converted data ~~structure~~ to the remote computer system using the second protocol module.

12. (Currently Amended) A method in accordance with Claim 1, further comprising the following:

an act of receiving the data ~~structure~~ using a first network driver module that is compatible with receiving data from the originating computer system; and

an act of determining a second network driver module that is compatible with delivering data to the remote computer system; and

an act of transmitting the converted data ~~structure~~ to the remote computer system using the second network driver module.

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13. (Currently Amended) A computer program product for use in a gateway computer system coupled between at least one originating computer system and at least one remote computer system, the computer program product for implementing a method of dynamically converting a data structure from a first format as received at the gateway computer system from an originating computer system into a second data format compatible with a remote computer system prior to transmitting the data to the remote computer system so that the remote computer system does not have to convert the data into the second data format, the computer program product comprising a computer-readable medium having computer-executable instructions for performing the following:

receiving a data in a first data format from an originating computing system that is addressed to a remote computer system;

an act of identifying a sequence of format conversion modules that, when executed in sequence, converts the data structure from the first data format into the second data format, wherein the act of identifying is based on the address to the remote computer system;

an act of converting the data structure from the first data format into an intermediate data format using a first format conversion module in the sequence of data conversion modules; and

an act of converting the data structure from the intermediate data format into the second data format using at least two second format conversion modules in the sequence of data conversion modules, each of the second format conversion modules converting the data structure into different formats;

upon converting the data to the second data format, transmitting the data to the remote computer system.

14. (Original) A computer-program product in accordance with Claim 13, wherein the computer-readable medium comprises a physical storage medium.

15. (Cancelled).

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16. (Currently Amended) A computer-program product in accordance with Claim ~~15~~13, wherein ~~the computer-executable instructions for performing the act of identifying the first data format comprises computer-executable instructions for performing the following:~~ an act of reading a content type field associated with the data structure.

17. (Currently Amended) A computer-program product in accordance with Claim ~~15~~13, wherein ~~the computer-executable instructions for performing the act of identifying the second data format comprises computer-executable instructions for performing the following:~~

an act of reading a destination address field associated with the data structure;

an act of querying a database for a data format recognized by the remote computer system that is represented by the destination address within the destination address field;
and

an act of determining that the resulting data format returned from database is the second data format.

18. (Currently Amended) A computer-program product in accordance with Claim 13, further comprising computer-executable instructions for performing the following:

an act of receiving the data structure using a first protocol module that is compatible with receiving data from the originating computer system; and

an act of determining a second protocol module that is compatible with delivering data to the remote computer system; and

an act of transmitting the converted data structure to the remote computer system using the second protocol module.

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19. (Currently Amended) A computer-program product in accordance with Claim 13, further comprising computer-executable instructions for performing the following:

an act of receiving the data ~~structure~~ using a first network driver module that is compatible with receiving data from the originating computer system; and

an act of determining a second network driver module that is compatible with delivering data to the remote computer system; and

an act of transmitting the converted data ~~structure~~ to the remote computer system using the second network driver module.

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20. (Currently Amended) In a gateway computer system coupled between at least one originating computer system and at least one remote computer system, a method of the gateway computer system dynamically converting a data structure in a first format as received at the gateway computer system from an originating computer system into a second data format compatible with a remote computer system prior to transmitting the data to the remote computer system so that the remote computer system does not have to convert the data into the second data format, the method comprising the following:

receiving data in a first data format from an originating computing system that is addressed to a remote computer system;

an act of identifying a plurality of sequences of format conversion modules that each, when executed in sequence, converts the data structure from the first data format into the second data format, wherein the act of identifying a plurality of sequences includes identifying an address of the remote computer system to which the data is addressed and wherein the act of identifying the plurality of sequences is based on the address associated with the remote computer system; and

a step for converting the data structure from the first data format into the second data format using one of the plurality of the sequences of format conversion modules; and

upon converting the data to the second data format, transmitting the data to the remote computer system.

21. (Currently Amended) A method in accordance with Claim 20, wherein the step for converting the data structure from the first data format into the second data format comprises the following:

an act of converting the data structure from the first data format into an intermediate data format using the first format conversion module in the one of the plurality of sequences of data conversion modules; and

an act of converting the data structure from the intermediate data format into the second data format using at least the second format conversion module in the one of the plurality of sequences of data conversion modules.

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22. (Cancelled).

23. (Currently Amended) A method in accordance with Claim 2220, wherein the act of identifying the first data format is identified from ~~comprises the following: an act of reading a~~ content type field associated with the data structure.

24. (Currently Amended) A method in accordance with Claim 2220, wherein the act of identifying the second data format comprises the following:

an act of reading a destination address field associated with the data structure;

an act of querying a database for a data format recognized by the remote computer system that is represented by the destination address within the destination address field;

and

an act of determining that the resulting data format returned from database is the second data format.

25. (Currently Amended) A method in accordance with Claim 2220, wherein the remote computer system comprises a wireless device.

26. (Original) A method in accordance with Claim 25, wherein the originating computer system comprises a server computer system.

27. (Original) A method in accordance with Claim 20, wherein the originating computer system comprises a wireless device.

28. (Original) A method in accordance with Claim 27, wherein the remote computer system comprises a server computer system.

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29. (Original) A method in accordance with Claim 20, wherein the originating and remote computer system both comprise wireless devices.

30. (Original) A method in accordance with Claim 20, wherein the originating and remote computer systems both comprise server computer systems.

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31. (Currently Amended) A method in accordance with Claim 20, further comprising the following:

an act of receiving the data ~~structure~~—using a first protocol module that is compatible with receiving data from the originating computer system; and

an act of determining a second protocol module that is compatible with delivering data to the remote computer system; and

an act of transmitting the converted data ~~structure~~ to the remote computer system using the second protocol module.

32. (Currently Amended) A method in accordance with Claim 20, further comprising the following:

an act of receiving the data ~~structure~~—using a first network driver module that is compatible with receiving data from the originating computer system; and

an act of determining a second network driver module that is compatible with delivering data to the remote computer system; and

an act of transmitting the converted data ~~structure~~ to the remote computer system using the second network driver module.

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33. (Currently Amended) A computer program product for use a gateway computer system coupled between at least one originating computer system and at least one remote computer system, the computer program product for implementing a method of dynamically converting a data structure in a first format as received from an originating computer system into a second data format compatible with a remote computer system prior to transmitting the data to the remote computer system so that the remote computer system does not have to convert the data into the second data format, the computer program product comprising a computer-readable medium having computer-executable instructions for performing the following:

receiving data in a first data format from an originating computing system that is addressed to a remote computer system;

an act of identifying a plurality of sequences of format conversion modules that each, when executed in sequence, converts the data structure from the first data format into the second data format, wherein the act of identifying a plurality of sequences includes identifying an address of the remote computer system to which the data is addressed and wherein the act of identifying the plurality of sequences is based on the address associated with the remote computer system; and

a step for converting the data structure from the first data format into the second data format using one of the plurality of the sequences of format conversion modules; and

upon converting the data to the second data format, transmitting the data to the remote computer system.

34. (Original) A computer-program product in accordance with Claim 33, wherein the computer-readable medium comprises a physical storage medium.

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35. (Previously Presented) A gateway computer system configured to be coupled between at least one originating computer system and at least one remote computer system; the gateway computer system configured to receive a data structure having a first data format from an originating computer system and then to subsequently transmit the data structure in a second format to a remote computer system such that the remote computer system does not have to convert the data into the second data format, the gateway computer system comprising:

means for receiving data in a first format from an originating computer system that is addressed to a remote computer system;

means for identifying an address of the remote computer system to which the data is addressed;

a plurality of format conversion modules including:

a plurality of first format conversion modules configured to convert data structures having a the first data format into intermediate data formats; and

a plurality of second format conversion modules configured to convert data structures having the intermediate data formats into the second data format;

and

a module means for identifying different sequences of first and second format conversion modules that are a subset of the plurality of format conversion modules and that, when executed in sequence, result in the data structure being converted from the first data format into the second data format, wherein identifying the different sequences is based upon the address associated with the data and the remote computer system.

36. (Original) The gateway computer system in accordance with Claim 35, wherein the originating computer system comprises a server computer system.

37. (Original) The gateway computer system in accordance with Claim 36, wherein the remote computer system comprises a wireless device.

38. (Original) The gateway computer system in accordance with Claim 35, wherein the originating computer system comprises a wireless device.

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39. (Original) The gateway computer system in accordance with Claim 38, wherein the remote computer system comprises a server computer system.

40. (Original) The gateway computer system in accordance with Claim 35, wherein the originating and remote computer systems both comprise a wireless device.

41. (Original) The gateway computer system in accordance with Claim 35, wherein the originating and remote computer systems both comprise a server computer system.

42. (New) A method as recited in claim 1, wherein the act of identifying the sequence is based on an amount of time it will take to convert the data from the first data format into the second data format.

43. (New) A method as recited in claim 20, wherein the step for converting the data from the first data format into the second data format using one of the plurality of the sequences includes selecting the one of the plurality of sequences based on an amount of time it will take to convert the data from the first data format into the second data format.

44. (New) A method as recited in claim 1, wherein the second data format corresponds to a network protocol that is proprietary with the remote computer system.

45. (New) A method as recited in claim 1, wherein the address of the remote computer system is provided to the gateway when the remote computer system registers with the gateway.

46. (New) A method as recited in claim 1, wherein the address comprises a telephone number.

47. (New) A method as recited in claim 1, wherein the address comprises a URL.